INTEROFFICE MEMORANDUM

TO:	MERLE JEFFERSON SR., EXCECUTIVE DIRECTOR LEROY DEARDORFF, ENVIRONMENTAL DIRECTOR JEREMY FREIMUND, WATER RESOURCES MANAGER
FROM:	MONIKA LANGE, NATURAL RESOURCE ANALYST
SUBJECT:	**JULY 27, 2011 LUMMI RIVER BOOM DEPLOYMENT DRILL (NPS-09)**
DATE:	7/29/11
CC:	RON TSO, CHIEF OF POLICE LINDA DELGADO, SALMON ENCHANCEMENT MANAGER,

The purpose of this memorandum is to summarize the spill drill that took place on July 27, 2011.

Participants:
The following LNR and LNPD staff participated in the drill:

1. Jeremy Freimund, Water Resources Manager
2. Frank Lawrence III, Water Resources Planner I
3. Jamie Mattson, Water Resources Specialist I
4. Jean Snyder, Water Resources Specialist II
5. Victor Johnson, GIS/Water Resources Specialist III
6. Monika Lange, Natural Resources Analyst
7. Sgt Edward Conway, LNPD
8. Officer Rich Hart, LNPD
9. Officer Jay Martin, LNPD
10. Don Kruse, Project Biologist
11. Frank Bob, Restoration Assistant
12. Linda Delgado, Salmon Enhancement Manager
13. Bill Revey, Sr., Assistant Seaponds Manager
14. Ernie Jefferson Jr., Fish Culturist
15. Bill Revey, Jr., Fish Culturist

Chad Huntley from the Marine Spill Response Corporation (MSRC) also participated and provided suggestions and hands-on support during the deployment.

Drill Strategy:
The exercise was a half-day oil spill response drill with boom deployment. The goal of the drill was to deploy boom strategy NPS-09 of the Geographic Response Plan (GRP) for the North Puget Sound (NPS) region (see attached diagram). NPS-09 places a boom across the mouth of the Lummi River and is intended to prevent oil from moving up into the Lummi River watershed.

Drill Goals:

1. In order to conserve limited spill response resources, determine if NPS-09 can be accomplished using 300 ft of boom rather than 400 ft as called for in the GRP.
2. Deploy "J" configuration that would allow oil collection by a vacuum truck from the east access road instead of the chevron configuration identified for NPS-09.
3. Determine the best method to access the west bank of the Lummi River mouth.
4. Determine and establish anchor points for the boom.
5. Determine actual time to deploy NPS-09.

Scenario:
During the pre-meeting held in the Sam Cagey room at the LNR office, Jeremy outlined the scenario for the day. In the scenario, oil from an oil spill at the ConocoPhillips refinery north of the Reservation was concentrating in Hale Passage and was predicted to enter Lummi Bay on the following high tide. The tide gates to the Seapond were already secured with deflection boom on the previous high tide. NPS-09 was to be deployed as the next step in the tribal response under the direction of the Unified Command. The low tide was expected to occur at 9:24 am at -0.85 ft MLLW, so boat access to the site was expected to be limited.

There is an access road along the sea wall at Lummi Bay on the east side of the Lummi River that was to be used to transport the boom trailer to the site. It was not known if it would be possible to cross the river mouth on foot at low tide, if a boat with a shallow draft would be needed, or if it would be possible to reach the west side of the river through the non-maintained road along the sea wall from Sandy Point Heights. After a discussion of the options at the pre-meeting, it was decided that a three-person team (Jeremy Freimund, Don Kruse, Victor Johnson) would try to cross the river with the LNR Lund boat, which would be launched from the east bank downstream from the deployment site.

Timeline:
Table 1 summarizes the spill drill events.

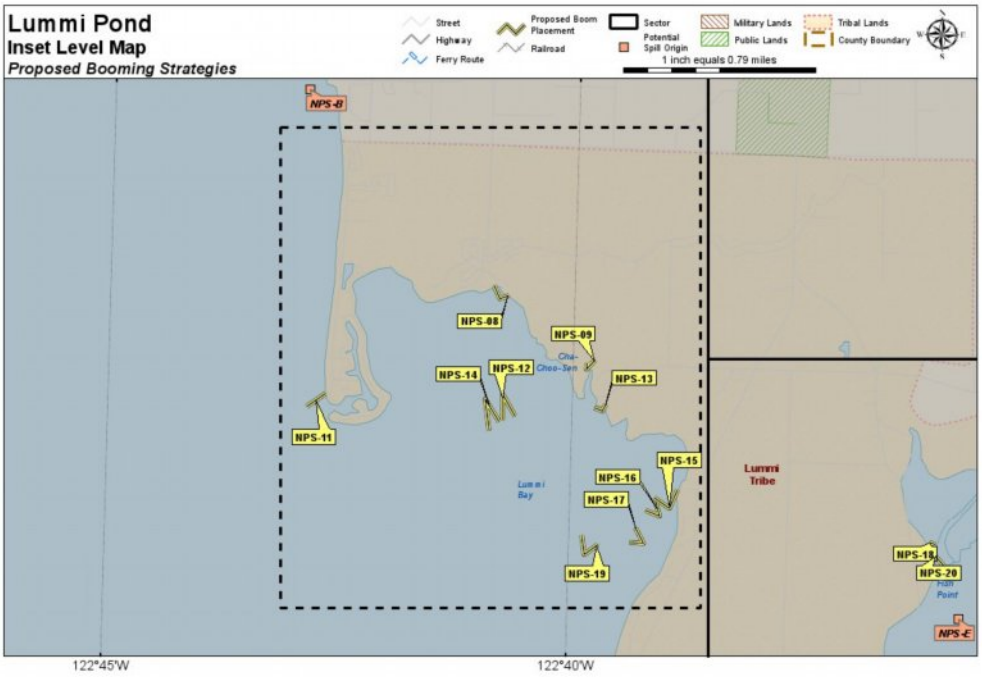
Table 1: Timeline of the July 27, 2011 Oil Spill Response Drill

Time	*Event*
8:40	Pre-meeting with explanation of the scenario, ICS overview, scheduling, and safety briefing.
9:05	End of pre-meeting. Mobilization of crew and drill equipment.
9:25	The drill equipment (boom trailer and Lund boat) leave the LNR campus.
9:35	Lund boat arrives at launch site; Boom trailer and crew arrive at NPS-09 deployment site.
9:42	Lund boat launches.
9:50	Lund boat arrives at NPS-09 deployment site.
9:53	Boom deployment starts.
10:03	Boom is deployed (no suitable anchor points on both banks). The boom is threaded between old pilings at west bank of the river.
10:04 to 10:30	Anchor points, belly line locations, and alternative access are scouted and discussed. The boom is repositioned out from the old pilings to give it more freedom of movement.
10:30	Boom reloading starts.
10:43	Boom reloaded onto the trailer.
10:55	Lund boat recovered.
11:00	Lund boat arrives back at LNR campus.
11:10	Boom trailer arrives back at LNR campus.
11:20	"Decontamination" (cleaning of mud) of the used boom starts using LNPD pressure washer.
11:50	Boom cleaned and reloaded onto trailer.
12:00	Lunch and de-briefing.
12:40	End of drill.

Results:
The following are "lessons learned" and recommendations resulting from the drill:

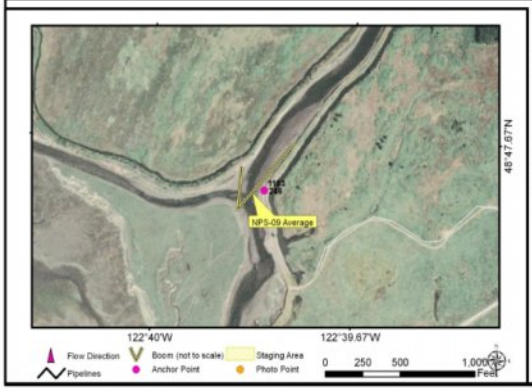
- The full 400 ft of the boom are needed to deploy NPS-09.
- A "J" configuration is more suitable for the site than a chevron as it will allow easier recovery of the product from the east side of the river.
- Access to the west bank of the Lummi River mouth is possible by crossing the river on foot at a tide level of approximately -0.85 ft MLLW. At this tide level, a boat was not necessary and was not maneuverable at the site. A low draft boat can be used at higher tide levels. Access from the road along the western extent of the seawall would be very time-consuming due to overgrown vegetation and would only be possible on foot. Improving this road would possibly result in increased trespass on Lummi tidelands and increased illegal dumping and is therefore not recommended.
- The time between the start of the mobilization from the LNR offices and the finish of the deployment of the boom was approximately one hour. The deployment of the boom itself took approximately 10 minutes.
- It is necessary to add "river anchors" to the existing spill equipment to anchor boom at NPS-09 and also at several other sites on the Reservation. The metal T-fence posts that are part of the equipment now are not adequate. Monika will source and buy the river anchors.
- Chad recommended securing the boom at 50 ft from both ends and a 150 ft from the east end with belly lines.
- The deflection boom should be augmented with absorbent sausage boom and pads to capture oil escaping under the deflection boom. These items should be brought along with the other equipment to the next spill drill for practice purposes (not for deployment).
- The muddy banks at the NPS-09 deployment site are very slick and soft in places.
- The LNPD pressure washer was very helpful in cleaning the mud from the boom.
- If resources allow, the boat should be retained on-site, upstream from the deployed boom to ensure access to the staff member on the west bank when the tide is in and to allow for the deployment of absorbent pads or sausage boom.

Images:
See the attached GRP diagram and images from the drill.



Lummi River — NPS-09-Average 4-90

Site Lat/Long:	N 48° 47.605' / W 122° 39.843', Sector Map NPS-4
Strategy Objective:	Exclusion, Collection - Keep oil out of river, collect oil if possible.
Implementation:	Deploy boom in a chevron, adjust angle and anchors based on real-time conditions. At tides below +2.5 should be able to deploy without a boat. But mud can be sticky. Site is vac. Truck accessible.
Site Safety Note:	Narrow dirt road, bank is steep and slippery.
Field Notes:	There are two access routes to the site. Hillaire RD and Kwina RD or Hilaire Rd just east of the Lummi River bridge. Get local tribal guide.
Resources Targeted:	tribal lands/resources, salmonids (anadromous), sensitive habitat
Fixed Anchors:	246: N 48° 47.615' / W 122° 39.815', Water Depth 0ft, E anchor point, may be able to use old pilings to help anchor boom, adjust as needed
Watercourse Description:	River with tidal influence



Suggested Equipment	
Quantity	**Description**
400 ft	B3 - River Boom, or other appropriate type
1 each	Danforth(s) or other appropriate anchor
1	Jet Boat
6 each	Stake(s)
1 each	Vac Truck(s)
Suggested Personnel	
1	Boat Operator (s)
1	Laborer (s)

Status: Visited and Not Tested 07/30/2008

NPS-09 Lummi River Boom Deployment Location

Pre-meeting.

Launching the Lund.

Mouth of the Lummi River at approximately -0.85 ft tide.

Boom deployment.

Boom Trailer on access road/levee.

First position for deployed boom.

Second position of deployed boom.

Retracting of boom.

Reloading the boom.

Bringing the boom up the levee bank.

Reloading on trailer.

Cleaning of boom at LNR campus ("Decontamination").